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**COMMONWEALTH OF
MASSACHUSETTS
AN ASSESSMENT
OF
EMERGENCY MEDICAL SERVICES**

March 17-19, 1992

National Highway Traffic
Safety Administration
Technical Assistance Team

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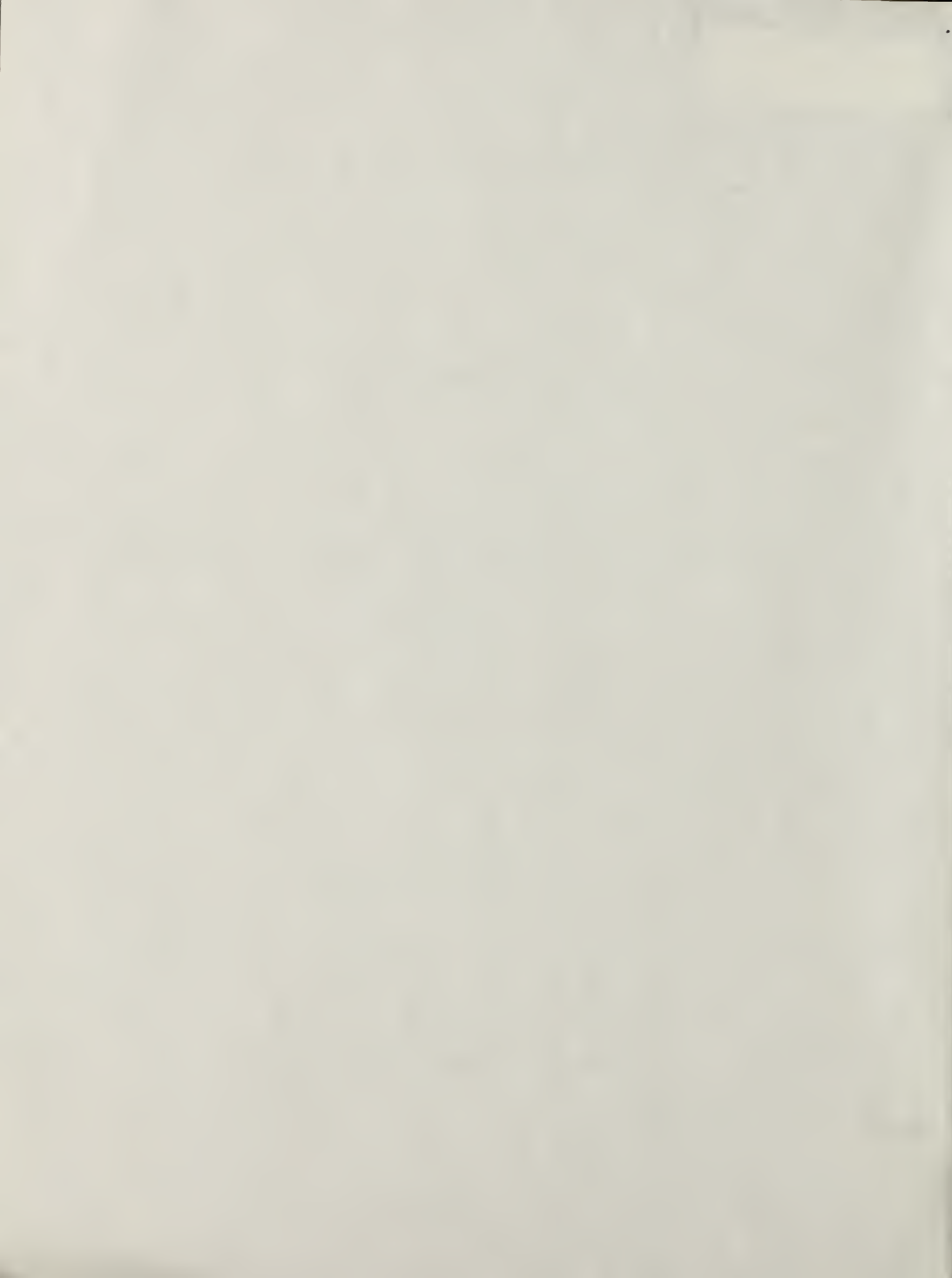


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BACKGROUND

Injury is the leading cause of death for persons in the age group 1 through 44. Each year nearly 50,000 people lose their lives on our nation's roads, and approximately 70 percent of those fatalities occur on rural highways. The National Highway Traffic Safety Administration (NHTSA) is charged with reducing death and injury on the nation's highways. NHTSA has determined that it can best use its limited resources if its efforts are focused on assisting states with the development of integrated emergency medical services programs that include comprehensive systems of trauma care.

To accomplish this goal, NHTSA has developed a Technical Assistance Team (TAT) approach that permits states to utilize highway safety funds to support the technical evaluation of existing and proposed emergency medical services programs. NHTSA serves as a facilitator by assembling a team of technical experts who have demonstrated expertise in emergency medical services development and implementation. These experts have demonstrated leadership and expertise through involvement in national organizations committed to the improvement of emergency medical services throughout the country. Selection to the Technical Assistance Team is also based on experience in special areas identified by the requesting state. Examples of specialized expertise include experience in the development of legislative proposals, data gathering systems, and trauma systems. Experience in similar geographic and demographic situations, such as rural areas, coupled with knowledge in providing emergency medical services in urban populations is essential.

The Commonwealth of Massachusetts Department of Public Health, Office of Emergency Medical Services, in concert with the Commonwealth of Massachusetts Department of Public Safety, Governor's Highway Safety Bureau requested the assistance of NHTSA. NHTSA agreed to utilize its technical assistance program to provide a technical evaluation of the Commonwealth of Massachusetts statewide EMS Program. NHTSA developed a format whereby the Commonwealth of Massachusetts Office of Emergency Medical Services provided comprehensive briefings on the EMS system based on an outline developed by the Technical Assistance Team.



The Technical Assistance Team assembled in Boston, Massachusetts on March 17, 1992 through March 19, 1992. For the first day and a half, over 30 presenters representing various components of the EMS system in the Commonwealth of Massachusetts, provided in-depth briefings on emergency medical services and trauma care in Massachusetts. Topics for review and discussion included the following:

General Emergency Medical Services Overview
of System Components

- Regulation and Policy
- Resource Management
- Human Resources and Training
- Transportation
- Facilities
- Communications
- Trauma Systems
- Public Information and Education
- Medical Direction
- Evaluation

The forum of presentation and discussion allowed the Technical Assistance Team the opportunity to ask questions regarding the emergency medical services system, clarify any issues identified in the briefing materials provided earlier, and develop a clear understanding of how emergency medical services function throughout Massachusetts. The team spent considerable time with each presenter so that they could review the status for each topic.

Following the briefings by presenters from Massachusetts OEMS, public and private sector providers, and members of the medical community, the Technical Assistance Team sequestered to evaluate the current EMS system as presented and to develop a set of recommendations for system improvements.

When reviewing this report, please note the areas in *bold italics* represent priority areas identified by the Technical Assistance Team.

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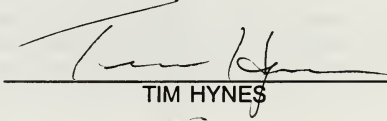
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The statements made in this report are based on the input received. Pre-established standards and the combined experience of the team members were applied to the information gathered. All team members agree with the recommendations as presented.



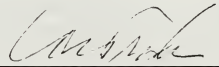
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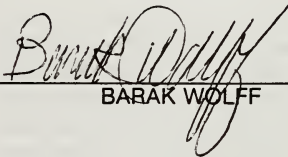
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BARAK WOLFF



ACKNOWLEDGMENTS

The Technical Assistance Team would like to acknowledge the Massachusetts Department of Public Safety, Governor's Highway Safety Bureau and the Massachusetts Department of Public Health, Office of Emergency Medical Services for their support in conducting this assessment.

The Team would like to thank all the presenters for being candid and open regarding the status of emergency medical services in Massachusetts. Each presenter was responsive to the questions posed by the Technical Assistance Team which aided the reviewers in their evaluation.

Special recognition should be made regarding the extraordinary efforts taken by Massachusetts Office of Emergency Medical Services Director, Frank Keslof, and staff in providing extensive written documentation on emergency medical services in Massachusetts, as well as organizing and participating in the oral presentations. In addition, the team thanks the briefing participants for their well-prepared and forthright preparations. Special thanks also to Cathy Day, OEMS, for coordination of the assessment and her valuable assistance to the team members before and during the site visit.

MEMORANDUM

TO : [Illegible]

FROM : [Illegible]

SUBJECT: [Illegible]

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INTRODUCTION

The Technical Assistance Team has performed a comprehensive analysis of the Massachusetts EMS system. This analysis is based on the presentations and interviews conducted by the team and the briefing documents provided to us. The combined experience and expertise of the team were applied to analyzing these materials. The resulting recommendations are the consensus of the team.

Massachusetts is experiencing a difficult period as the state confronts declining revenues, thus reducing the resources available to deal with public health issues. The Massachusetts Office of Emergency Medical Services staff, the regional councils, and the providers throughout the Commonwealth should be commended for their perseverance through these difficult times. Despite the constraints imposed on the system, a strong ambulance regulatory program, a regional council system, five trauma centers, and an outstanding medevac system have been maintained and development of an enhanced 9-1-1 system is underway.

This report was developed with the understanding that the citizens of Massachusetts deserve an integrated and comprehensive statewide EMS system in order to assure excellent patient outcomes. All elements of an EMS system must work in concert in order to provide a safe, cost-effective and patient-care driven system.

Where there is no vision, the people perish.

-Proverbs 29:18

The team believes that it is critical that the stakeholders in the Massachusetts EMS system come together to create a vision of where the Massachusetts EMS system should be in the year 2000. While we recognize that it is often difficult to focus on creating a vision while trying to find a way to meet the crisis of the day, we believe that failing to plan is planning to fail. We are convinced that the process of bringing the stakeholders together and developing a common vision for the future is more important than the planning document that will result, because developing a shared vision will enable the stakeholders to work with legislative and executive staffs to move the vision toward a new reality. The development of an overall EMS vision needs to encompass an EMS system plan which includes a trauma system plan, a communications plan, a quality improvement plan, a better definition of the roles of OEMS and the regions, identification of the fiscal resources needed to bring the vision to reality and identification of options for creating the fiscal resources. The need to develop plans is a theme that is repeated throughout the team's recommendations.

Perhaps the foundation principles depicted in the Boston Commons, "Learning, Religion, and Industry" might guide this process.

MEMORANDUM

TO : [Illegible]

FROM : [Illegible]

SUBJECT : [Illegible]

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MASSACHUSETTS EMERGENCY MEDICAL SERVICES (EMS)

The Technical Assistance Team reviewed ten essential components of an EMS system. For each component reviewed, the Technical Assistance Team identified key EMS issues or standards, assessed the status, and made recommendations for necessary changes.

A. REGULATION AND POLICY

Standard

To provide a quality, effective system of emergency medical care for adults and children, each EMS system must have in place comprehensive enabling legislation with provision for a lead EMS agency, as well as a funding mechanism, regulations, and operational policies and procedures.

Status

The initial Emergency Medical Care Act (Chapter 111c) was passed in 1973. It has been amended several times since then in very specific, minor ways. The law empowers the Department of Public Health to establish and enforce rules and regulations related to the operation of ambulance services, vehicles, personnel, equipment, communications and records. It also provides authority for the Department to inspect and license various classifications of ambulance services; approve training courses for ambulance attendants and operators; and ". . . coordinate on a regional basis communication centers, ambulance services, hospital emergency services, law enforcement and fire and emergency operations centers and facilitate hospital transfer of patients." The law also authorizes the Commissioner of Public Health to appoint and utilize an Emergency Medical Care Advisory Board to assist the Department in its duties. The composition of this Board mandated by law may not adequately reflect appropriate constituents of the current EMS community. The Act and a subsequent amendment provide broad civil and criminal immunity for EMS personnel in rendering emergency care and transportation to patients, as well as to physicians and nurses providing medical advice or orders to such personnel.

The Emergency Medical Care Act does not reference standards for medical direction of EMS, the development and implementation of trauma care or other critical care systems, data collection and evaluation, or provide authority and responsibility to establish and implement a statewide EMS plan.

There is no dedicated EMS funding mechanism to support either the provision of EMS services at the local level or the operation of the state EMS office. Currently, there is only about \$150,000/year in state general fund support for the EMS office which supports the ambulance inspection and enforcement program. The remainder is funded from the Federal Preventive Health and Health Services Block Grant from which the Department

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
5800 S. UNIVERSITY AVENUE
CHICAGO, ILLINOIS 60637

RECEIVED
MAY 15 1964

TO THE DIRECTOR
OF THE UNIVERSITY OF CHICAGO
FROM THE DEPARTMENT OF CHEMISTRY
CHICAGO, ILLINOIS

RE: [Illegible]

of Public Health allocates \$500,000 for the operation of the state office and \$500,000 in contractual support to the five EMS Regional Councils. OEMS has also received about \$50,000/year since the mid-1980s from the NHTSA Section 402 funds from the Governor's Highway Safety Office which have been used for various training projects. This represents a considerable reduction in total funding to EMS from what it was in the late 1970s under the categorical EMS grants and from the combination of state and federal funding throughout most of the 1980s. State funding was reduced during the economic crunch that hit the Commonwealth in the late 80s. This negatively impacted both the state EMS office and regional councils. There was no mention as to whether or not EMS might receive additional funding since the Preventive Block Grant has been increased by more than 35% in the current federal fiscal year.

Detailed regulations have been developed in regards to ambulance requirements, personnel certification, and approval of training programs, instructor/coordinators, and examiners. The regulations also expand on the regional EMS councils' responsibilities and make them the major focal point for "voluntary" systems development, coordination and monitoring. The regulations also identify the requirements for staffing of BLS and ALS ambulance vehicles and the training requirements for first responders which are defined to include all fire service and law enforcement personnel. The regulations also include a process for infectious disease notification, although they do not require mandatory testing in cases of significant potential exposure. In addition to these regulations there are a series of written policies or "administrative requirements." However, there is currently no guidance in the areas of Do Not Resuscitate (DNR) orders, point of entry requirements, or regulation of hospital-based non-transport services.

One of the concerns apparent to the team is the lack of clarity in the scope and function of OEMS as the "lead agency" for EMS, particularly in regards to the delegation of roles and responsibilities to the regional councils. In some areas it appears that the regions should be functioning in a more coordinated and synergistic fashion with one another and with OEMS. This has been compounded by the various cutbacks in funding that have left OEMS focusing almost exclusively on training coordination, examination and certification of personnel, ambulance inspection and licensure, and enforcement activities. Significant areas requiring state leadership, consensus building, and policy development are simply not being addressed due to their lack of priority within current resource allocation decisions and/or the lack of resources overall.

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Recommendations

- ◆ ***Under the auspices of the State EMS Advisory Board or other appropriate group of key "stakeholders", the Department needs to review the Emergency Medical Care Act with a critical eye towards expanding and updating the definition and conceptual basis for EMS in Massachusetts.*** This re-evaluation needs to include: a definition of EMS systems, including a legal basis for medical control; an expansion of the "lead agency" responsibilities to include the development and maintenance of a state EMS plan and the roles of the regional councils; inclusion of enabling language for the development and implementation of a trauma care system; and exploration of potential dedicated EMS financing mechanisms.
- ◆ Along with this significant introspective process, the group needs to develop a strategy for implementation that recognizes both internal and external environmental factors. The team recognizes the tough financial conditions that exist and the restrictive attitudes toward expansion of state functions. However, without this level of re-examination and consensus building there will be only limited future progress for EMS in the Commonwealth.

The team is also sensitive to the difficult challenge of expanding resources for EMS at this time. The team was impressed, however, to learn of the successful efforts of one committed legislator to champion a new program in violence prevention. With broad public support and zealous leadership, EMS can likewise receive positive attention.

- ◆ Develop statewide policy in the areas of DNR orders, point of entry requirements, expectations for hospital based non-transport services, etc.

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2. The second part of the document outlines the specific requirements for record-keeping, including the need to maintain original documents and to keep copies of all records for a minimum of seven years. It also discusses the importance of ensuring that records are stored in a secure and accessible manner.

3. The third part of the document discusses the role of the auditor in verifying the accuracy of the records. It emphasizes that the auditor must exercise due diligence and must be able to trace all transactions back to their source. It also discusses the importance of the auditor's independence and objectivity.

4. The fourth part of the document discusses the consequences of failing to maintain accurate records. It notes that failure to do so can result in the disqualification of the auditor and can also result in the imposition of penalties. It also discusses the importance of the auditor's report and the need for it to be clear and concise.

B. RESOURCE MANAGEMENT

Standard

The provision of centralized coordination to identify and categorize the resources necessary for overall system implementation and operation is essential to an effective EMS system. This is required to maintain a coordinated response and appropriate resource utilization throughout the state. It is essential that adult and pediatric victims of medical or traumatic emergencies have equal access to basic emergency care, including the triage and transport of all victims by appropriately certified personnel (at a minimum, trained to the EMT-Basic level) in a licensed and equipped ambulance to a facility that is appropriately equipped and staffed, and ready to administer to the needs of the patient.

Status

Massachusetts does not have a current statewide EMS plan. The state office has had declining resources, which perhaps accounts for not focusing on the development of a plan. It has a regional structure whose functions are laid out in regulation (see 105 CMR 170.100 to 106). The regions each have contracts with the state, but the expectations (deliverables) vary from region to region. Each region has ALS protocols, while BLS protocols are not universally available.

OEMS has a strong ambulance standards program, including regulations. A significant portion of the staff is dedicated to conducting ambulance inspections, and enforcement. Universal basic life support ambulance service coverage appears to be available. There is currently a requirement for two certified personnel to be in the ambulance whenever it transports a patient, even though one of them will be driving the vehicle. There is also coverage of a significant part of the population with at least part-time advanced life support services. There is a regulation requiring that within three years, an advanced life support service must have at least two ALS personnel on staff at least eight hours a day. There is also a medevac system, which incorporates a helicopter utilization committee to assure that inappropriate missions are minimized.

Recommendations

- ◆ ***Massachusetts must develop a State EMS Plan. The plan should be a vision for a statewide EMS system through the year 2000, and should consider the recommendations of this report.*** The planning process should include major stakeholders in the EMS system, including: the State Advisory Board; representatives from the regional EMS councils; medical directors; representatives from one or more training programs; legislative staff; consumer advocates; the Governor's Highway Safety Representative; injury control professionals; and the Massachusetts Hospital Council. As part of the planning process, ways to enhance cooperative efforts between OEMS and other stakeholders, including the regions and other DPH units, should be encouraged. "Plans are nothing and planning is everything."
- ◆ ***DPH and OEMS should reexamine the use of resources within OEMS.*** It is striking that a large portion of the staff are focused on regulatory activities, with little opportunity to focus on policy development and system leadership. Consideration should be given to refocusing staff time to system development and leadership. Limited access to the state medical director, due to budget cuts, virtually mandates that the way his time is used be reconsidered.
- ◆ Development of a clearer medical direction structure needs to be part of the planning process. The medical directors need to develop a statewide set of basic life support protocols and begin the process of minimizing differences between the regional ALS protocols.
- ◆ OEMS should revise its current ambulance staffing requirements. In the case of advanced life support services, it should allow for one EMT-P or EMT-I and one EMT, provided that the system, in cooperation with the medical director, could require a higher standard. In the case of basic life support services, the requirement should be for two certified EMTs at the scene, but only one required as a minimum during transport.
- ◆ OEMS should reconsider its regulation concerning eight hour per day coverage for advanced life support services, and consider substituting a rule which allows ALS service at less than eight hours per day, but requires 24 hour per day coverage before such services can be advertised.

THE
MAYOR

OF THE CITY OF

NEW YORK

C. HUMAN RESOURCES AND TRAINING

Standard

EMS personnel can perform their mission only if adequately trained and available in sufficient numbers throughout the state. At a minimum, all transporting prehospital personnel should be trained to the EMT-Basic level. In addition, each prehospital training program should use a standardized curriculum for each level of EMT personnel. In an effective EMS system, training programs are routinely monitored, instructors must meet certain requirements, and the curriculum is standardized throughout the state. In addition, the state agency must provide a comprehensive plan for stable and consistent EMS training programs with local and regional support.

Status

The Commonwealth of Massachusetts has more than 13,000 prehospital care providers. There are 12,258 certified at the basic level; 328 are certified at the intermediate level, and 817 certified at the paramedic level. All certification courses meet the DOT curriculum standards. EMTs are certified by OEMS with a written and practical exam. Paramedics are certified by the National Registry Exam. Additional skill privileges may be granted for MAST and EMT-D. Certification for all levels is valid for a two-year period. Recertification is based on continuing education hours and refresher training programs.

OEMS maintains an active program of approving instructor coordinators and advanced life support training programs. However, quality improvement is limited and evaluation appears to be complaint driven.

Based on information provided to the team, there appears to be an abundance of properly trained prehospital providers. NHTSA has funded various specialized training programs in the state in excess of \$300,000 since 1986. Rural services rely heavily on volunteer staffing. Testimony indicated coverage may be inconsistent. Rural providers expressed some difficulty in obtaining quality continuing education.

Special recognition should be given to the first responder training and the EMT-D program. It is laudable that all firefighters, law enforcement personnel and life guards are required to obtain a minimum level of training. The defibrillation program was developed and deployed based on research data on patient outcomes and previously identified components (CPR training, response times, etc.) necessary for successful implementation.

Nearly 100% of the population is serviced by EMS providers certified at an EMT level. More than 80% of the population has access to ALS service. However, it is unclear what percent has 24-hour ALS coverage.

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There is no current requirement for emergency medical dispatcher training or emergency vehicle driver training and it appears course availability is limited.

Recommendations

- ◆ ***Initiate EMS dispatcher training and certification throughout the state.***
The training should emphasize the importance of post-dispatch instructions.
- ◆ ***Initiate emergency vehicle driver training on a statewide basis.***
- ◆ Initiate proactive evaluation of EMS training courses and instructors.
- ◆ Examine successful rural EMS provider recruitment and retention programs from other areas of the country.
- ◆ Investigate alternative methods of obtaining continuing education such as interactive video, video tape subscription service, and satellite emergency training network.

D. TRANSPORTATION

Standard

Safe, reliable ambulance transportation is a critical component of an effective EMS system. Most patients can be effectively transported in a ground ambulance staffed by qualified emergency personnel. Other patients with more serious injuries or illnesses, particularly in remote areas, require rapid transportation provided by rotor craft or fixed wing air medical services. Routine, standardized methods for inspection and licensing of all emergency medical transport services is essential to maintain a constant state of readiness throughout the state.

Status

The six million residents of the Commonwealth of Massachusetts are served by 307 licensed ground and air ambulance services. There are 855 ground ambulances and two helicopters serving the urban, suburban, and rural population of the state. An additional helicopter has been approved to go on line in Boston in the near future.

From information provided to the team, ground ambulances appear to be appropriately distributed and in good condition. There is a vigorous ambulance inspection program in place staffed by four inspectors serving the entire state. This appears to be a high quality, comprehensive program.

Due to varying regional policies and community hospital philosophies, there is some question as to the under utilization of air ambulance services.

Ambulance charges vary throughout the state. Many services do not assess usage fees based on actual operational costs. This negatively affects the usual and customary payor profile.

With the repeal of the safety belt law, there is no provision for safety belt usage by occupants of emergency vehicles.

Recommendations

- ◆ ***Develop standard helicopter utilization criteria for scene and interhospital transport through a consensus process of the state and regional medical directors and the air ambulance medical directors.***
- ◆ Provide educational presentations of the helicopter utilization protocol for prehospital providers and community hospital emergency department staffs.
- ◆ Ambulance providers should develop a fee structure that reflects actual operational costs.
- ◆ Implement mandatory safety belt usage policy for emergency vehicle operators and passengers.

E. FACILITIES

Standard

It is imperative that the seriously ill patient be delivered in a timely manner to the closest appropriate facility. This determination needs to consider both stabilization and definitive care. This determination should be free of political considerations and requires that the capabilities of the facilities are clearly understood by prehospital personnel. Hospital resource capabilities must be known in advance so that appropriate primary and secondary transport decisions can be made.

Status

There are many well recognized and outstanding medical facilities within the Commonwealth of Massachusetts, some with an international reputation. The team was told that there are 97 acute care medical facilities within the state. Pediatric capabilities are apparently known in Regions II and IV. There does not appear to be any objective categorization of acute care facilities as to their capabilities for managing emergency medical conditions such as cardiac, trauma, etc. Hence the prehospital personnel in most areas of the state are uncertain of the various hospitals' capabilities. At times, this leads to patients being delivered to inappropriate facilities. There is currently no data to define the magnitude of this problem. Although hospitals do report discharge data, there is no minimum data set. Self-designation by hospitals does exist using terms such as "Level II Trauma Center" when there is no available evidence to assure verification according to accepted national parameters for the quoted term.

All 97 hospitals have physicians staffing the emergency departments 24 hours per day; however, the qualifications of these physicians are not defined. There are no minimum standards, training requirements or requirements for certification in emergency medicine for those physicians.

Poison control information is readily available for the acute care facilities and also the free standing emergency care centers.

Disaster preparedness does not appear to be adequately coordinated, nor is OEMS currently able to integrate the management of a medical disaster among the medical facilities within the state. The lack of an appropriate inventory of each facility's capabilities and capacity compounds the problem.

Some regions do have triage and destination policies for ground and rotor craft transportation. There are areas, however, where the prehospital personnel have no guidelines and are uncertain of the most appropriate destination facility and of which patients should be air evacuated. Some facilities have been reported to have discouraged air evacuation of appropriate patients.

Recommendations

- ◆ *An inventory of each acute care hospital's capabilities and capacity should objectively be determined for all EMS categories. These findings should be conveyed to the prehospital providers and medical directors.*
- ◆ *Prehospital providers and emergency departments need protocols to integrate the above information.*
- ◆ A trauma registry minimum data set for every hospital needs to be established and required. E codes for every trauma discharge should be part of that data set.
- ◆ Interfacility transfer agreements for tertiary EMS transfers need to be established.

F. COMMUNICATIONS

Standard

An effective communications subsystem is an essential component of an overall EMS system. Beginning with a universal system access number, the communications network should provide for prioritized dispatch, dispatch to ambulance communication, ambulance to ambulance, ambulance to hospital, and hospital to hospital communications to ensure adequate EMS system response and coordination.

Status

Basic 9-1-1 services cover 42% of Massachusetts' population. Enhanced 9-1-1 is being introduced. The state has comprehensive enabling legislation, a funding mechanism, and an implementation and system operations structure for the Enhanced 9-1-1 system. Massachusetts is to be commended for its commitment to developing a statewide Enhanced 9-1-1 system.

Although Massachusetts has a communications plan, it is several years old. The C-MED (Central Emergency Medical Direction) system covers most, but not all of the state. The equipment is approaching the end of its useful life. It is no longer supported by the manufacturer, so continuing maintenance is a concern. The system relies on leased telephone lines for parts of its operation, rather than microwave links, which adds significantly to its cost. While there were state funds spent on the C-MEDs several years ago, there has been minimal investment in the system recently. There is limited ability for the C-MEDs to communicate with one another, and mass casualty incident (MCI) or disaster communications and mutual aid plans appear not to be well coordinated between regions.

Cellular telephone coverage is not universal throughout the state, and cell prioritization (ruthless pre-emption) does not appear to be available to assure that public safety communications have priority over other users. Communications protocols, particularly regarding pre-arrival notification to hospitals for BLS transports, varies by region.

There is no one identified in the state office with responsibility for communications coordination and planning.

Emergency medical dispatching, including post-dispatch instructions, does not appear to have been introduced outside metropolitan Boston, despite the extended response times faced by rural areas of central and western Massachusetts.

Recommendations

- ◆ ***An updated communications plan needs to be developed by a committee of the EMS Advisory Board.*** The advisory board committee should be assisted by a staff person assigned by OEMS.

The plan should assess current deficiencies and consider future communications needs and changing technology.

The plan should ensure compatibility among the regions.

Expertise from local educational institutions should be sought.

- ◆ An MCI communications and dispatching plan should be developed, utilizing personnel from the regions and the C-MEDs.
- ◆ Massachusetts should utilize the expertise made available under the National Association of State EMS Directors communications grant in developing its plan.
- ◆ ***Emergency Medical Dispatching should be implemented as soon as practical throughout the Commonwealth, with particular emphasis on early implementation in rural areas with the longest response times.***

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is essential for ensuring transparency and accountability in the organization's operations.

2. The second part outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent data collection procedures and the use of advanced analytical techniques to derive meaningful insights from the data.

3. The third part focuses on the implementation of data-driven decision-making processes. It describes how the organization uses the insights gained from data analysis to inform strategic planning and operational decisions, leading to improved performance and efficiency.

4. The final part of the document discusses the challenges and opportunities associated with data management. It identifies key areas for improvement and provides recommendations for addressing these challenges, such as investing in data infrastructure and training staff in data literacy.

G. PUBLIC INFORMATION AND EDUCATION

Standard

Public awareness and education about the EMS system is essential to a quality system and is often neglected. Public information and education efforts must serve to enhance the public's role in the system, its ability to access the system, and the prevention of injuries. In many areas, EMS personnel provide system access information and present injury prevention programs which ultimately lead to better utilization of EMS resources and improved patient outcome.

Status

OEMS previously had a staff position with clear responsibilities for Public Information and Education (PI&E) that has been lost due to fiscal cutbacks. During that time, various PI&E activities were initiated including EMS Week activities, Zoomer the Kangaroo to educate children about safety, start-up of the Emergency Nurses Cancel Alcohol Related Emergencies (ENCARE) program, public service announcements, etc.

Currently, only the EMS Week proclamations are handled directly by OEMS. There is no EMS newsletter, no state sponsored recognition awards, no ongoing public information program aimed at citizens regarding utilization of EMS and no overall plan for PI&E. The EMS Regional Councils conduct occasional public information campaigns, but with a minimum of coordination, planning or evaluation.

An active emphasis on the importance of citizen CPR as part of the "Chain of Survival" in conjunction with the use of automatic defibrillators has been accomplished through the leadership of the OEMS and the EMS Regional Councils. Authorizing some continuing education credits for EMTs teaching citizen CPR has helped to make this a win/win situation. Also, under the reorganized State EMS Advisory Board, a Public Information and Education standing committee has been appointed, but has not yet begun its work.

Recently, OEMS has begun to coordinate with the various injury prevention programs that are located within the Division of Family and Community Health, Department of Public Health. This is an extremely active unit which has been able to attract and maintain a variety of federal funds from the Maternal and Child Health Block Grant, CDC and NHTSA 402 Program to support efforts in children's safety, poison control, elderly injury control, traffic safety, etc. In addition, a recent state initiative will provide funds for a major violence prevention project. This office also is planning to develop and submit a proposal for the next round of EMS For Children (EMSC) state grants that should be awarded before October 1992. There are also several programs in the Boston area such as the Children's Safety Network and the Harvard Injury Control Project that are actively involved in these same issues on local, state, and national levels. It does not appear that these various programs have viewed the EMS community as an active ally in their efforts,

although there seems to be growing awareness of the efficacy of increased collaboration with EMS.

Recommendations

- ◆ ***Utilize the Public Information and Education Standing Committee of the State EMS Advisory Board to formulate a consensus public information and education plan. To accomplish this, it is suggested that a specific staff member from OEMS be assigned to provide staff support, that each EMS Regional Council be represented, and that membership include representatives from the Division of Family and Community Health, the Governor's Highway Safety Office, EMS professional associations, the media, etc.***
- ◆ OEMS should work towards developing an informational newsletter published and distributed several times a year to all EMTs, provider organizations, hospitals, etc. It may be possible to fund this from the EMS for Children proposal. A newsletter is an excellent way to share information about policy, successful programs, prevention campaigns, etc.
- ◆ OEMS should institute a program of recognition awards for EMTs, First Responders, services, local systems, citizens, etc. This may be accomplished with minimal resources. Not only is it important to recognize excellence and achievement, but it builds morale and attracts media coverage. In many states the Advisory Board actually manages the selection process to ensure objectivity and gain recognition for itself.
- ◆ Consistent with the PI&E plan, implement various strategies aimed at such topics as early recognition of emergency problems, calling 9-1-1 (particularly in conjunction with the statewide implementation of Enhanced 9-1-1), appropriate use of EMS, the importance of trauma care systems, and injury control.

H. MEDICAL DIRECTION

Standard

EMS is a medical care system that includes medical practice as delegated by physicians to non-physician providers who manage patient care outside the traditional confines of office or hospital. As befits this delegation of authority, it is the physician's obligation to be involved in all aspects of the patient care system.

Specific areas of involvement include the following:

- planning and protocols
- on-line medical direction and consultation
- audit and evaluation of patient care.

Status

The Commonwealth of Massachusetts provides for medical direction of prehospital care by EMT Basics using automatic defibrillators, EMT-Intermediates and Paramedics. This medical direction is provided by Regional Medical Directors as well as medical directors identified for individual automatic defibrillator, intermediate or paramedic agencies. Although these agencies are required by law to have an affiliation with a hospital, there is no state requirement for an identified medical director; this is accomplished through the regional ALS plan. There appears to be an adequate number of interested physicians to provide medical direction at its current level of activity. The Massachusetts Chapter of the American College of Emergency Physicians has been very supportive of EMS activities throughout the Commonwealth. It is through the medical director's dedication and willingness to be involved in EMS activities that medical direction is accomplished. The majority of medical direction activities throughout the Commonwealth are unfunded by the EMS systems. Some of those activities are funded, by default, from the hospitals or medical groups for which the physicians work, but not commensurate with the level of activity provided by these physicians.

Medical direction at the state level is provided by a State EMS Medical Director on a part-time basis. The support for this position has decreased in recent years. Currently much of his responsibility involves the proctoring and evaluation of state level advanced skills examinations. This level of activity seems to prevent his involvement in policy activities of the OEMS. There appears to be no job description outlining the roles and responsibilities for this position.

The majority of off-line medical direction in the EMS regions is provided by the Regional EMS Councils and their medical directors. Each of the regions has established treatment care protocols for prehospital care providers. In some regions these include basic through advanced level providers; in other regions they include protocols for only



automatic defibrillator and advanced personnel (intermediate and paramedic level). The protocols generally include provision for standing orders which allow for patient care activities prior to medical control contact. This off-line medical direction from the Regional Medical Director is supported by input from individual agency medical directors. The roles and responsibilities of regional and local agency medical directors vary from region to region. Several presenters provided varying descriptions and perspectives regarding their expectations and roles.

The Regional Medical Directors have responsibility for credentialing the intermediate and paramedic providers within the region. They also have some responsibility for quality assurance/improvement activities but the level of these activities varies from region to region. The local medical directors also have varying levels of responsibility for off-line medical direction. There are no qualifications or standards established for medical directors at any level and no consistent training for medical directors (including on-line and off-line activities).

Currently on-line medical direction is provided only by direct contact between the EMS provider and the physician. There is no provision for the use of other personnel to convey on-line medical direction.

There has been some training in the past for on-line medical direction physicians with plans for additional training programs in the future. Qualifications for physicians providing on-line medical direction are inconsistent throughout the Commonwealth. Some areas offer capability for paramedic or C-MED operator initiated on-line medical control override. Generally, this is accomplished by prospectively established criteria. When this does occur, mandatory review of the incident occurs.

There currently is no provision for medical direction for first responders or Basic EMTs throughout the Commonwealth. Additionally, there is generally no medical direction for the activities of emergency medical dispatchers.

Although there appears to be fairly good communication among medical direction physicians within a region and informal communication among the regional medical directors, there is no EMS medical directors' forum in the Commonwealth.

State legislation has provided for good liability immunity coverage for EMS personnel as well as those hospital personnel supporting EMS activities. Generally the dec credentialing and due process mechanism is well defined throughout the Commonwealth.

In recent years, there has been increased interest in EMSC activities in the Commonwealth with involvement of pediatric emergency physicians and surgeons in the development of treatment care protocols.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is crucial for the company's financial health and for providing transparency to stakeholders.

2. The second part of the document outlines the specific procedures for recording transactions. It details the steps from initial entry to final review, ensuring that all necessary information is captured and verified.

3. The third part of the document addresses the role of the accounting department in this process. It highlights the need for clear communication and collaboration between different departments to ensure the accuracy of the data.

4. The fourth part of the document discusses the importance of regular audits and reviews. It explains how these checks help to identify any discrepancies or errors early on, preventing them from becoming major issues.

5. The fifth part of the document provides a summary of the key points discussed. It reiterates the importance of accuracy, transparency, and regular communication in the financial reporting process.

6. Finally, the document concludes with a statement of commitment to the highest standards of financial integrity and accuracy. It expresses the company's dedication to providing reliable and transparent financial information to all stakeholders.

Recommendations

- ◆ ***Basic EMTs, First Responders and EMS Dispatchers should be provided with medical direction.*** This medical direction should include the establishment of protocols to define the standard of care. The availability of on-line medical direction should be established for all BLS agencies.
- ◆ All agencies providing patient care should be completing an EMS run form on all patient contacts and providing a copy to the receiving hospitals.
- ◆ ***OEMS should reassess the focus of activities of the State EMS Medical Director.*** Delegating some of the responsibility for testing/ evaluation supervision would allow time for additional activities.
- ◆ Establish a state plan for medical direction throughout the Commonwealth, to include the state EMS Medical Director, Regional Medical Directors and local agency medical directors. This should include establishing minimum qualifications for on-line and off-line medical directors and include establishing job descriptions to consistently define roles and responsibilities at all levels of medical direction. Once qualifications are established, training programs for those individuals should be expanded.
- ◆ Medical directors should be compensated for their medical direction activities. Medical direction functions are critical to the effective management of an EMS system and should be recognized as such.
- ◆ Increase quality assurance/improvement activities, from the state level extending to local agency activities.
- ◆ Investigate the possibility of facilitating on-line medical direction using support personnel in the prehospital and hospital settings.
- ◆ Develop a medical director forum to facilitate communication among medical directors.

I. TRAUMA SYSTEMS

Standard

To provide a quality, effective system of trauma care, each state must have in place a fully functional EMS system. Enabling legislation should exist for the development of the trauma system component of the EMS system. This should include Trauma Center designation (using ACS-COT, APSA-COT and other national standards as guidelines), triage and transfer guidelines for trauma patients, data collection and trauma registry definitions and mechanisms, mandatory autopsies, systems management, and quality assurance for the systems effect on trauma patients. Rehabilitation is an essential component of any statewide trauma system.

Status

There are several well recognized (adult and pediatric) trauma centers as well as burn centers within the Commonwealth of Massachusetts. Also there are prehospital providers and emergency departments who deal with the multiply injured and/or critically injured very well. There is available aeromedical evacuation for trauma patients but there is no data suggesting that this service is established for all trauma patients who would be best served by rapid transport to an appropriate trauma center. There is no consistent statewide triage criteria for trauma patient evacuations either by ground or by air.

There is not a fully functional EMS system and/or a plan to develop same. There is no enabling legislation or proposed legislation for the development of a trauma system. The team was not advised that key members of the legislature or the executive branch have prioritized this as an issue.

A comprehensive statewide trauma system plan has not been developed which recognizes all of the components as defined by the American College of Surgeons Committee on Trauma and the Trauma Subcommittee of the American College of Emergency Physicians. A statewide trauma registry does not exist. Mandatory post mortem examination legislation for trauma victims who die has not been enacted. Continuous quality improvement can not occur because there is no data on mortality or morbidity of trauma patients within the state. Also there is no data on the number of injuries or the severity of injuries. Rehabilitation issues have not been addressed.

The components of a trauma system which are in place are disjointed and not coordinated. Dialogue between centers and within centers doesn't take place. It is perceived that reimbursement to hospitals and physicians is not acceptable (i.e., too many self pay patients) however there is no evidence to substantiate this perception. There are reports of patients not being transferred in an appropriate and timely fashion from a community hospital to a Level I trauma center.

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Many community hospitals could not fulfill the role of Level II trauma centers because of lacking surgical specialty coverage such as neurosurgery and in some cases orthopedics. There does seem to be a willingness in some community hospitals to participate in a trauma system if funding for uncompensated trauma was addressed. The team was told that emergency physicians and surgeons in community hospitals identified a cordial relationship with surgeons at the Level I centers; however, when resident physicians were part of the acceptance procedure there were often delays and confusion for patient transfers.

Recommendations

- ◆ ***Trauma system planning should occur as part of the development of a state EMS plan. A strategy for implementation should be included.***

This planning should be done by a blue ribbon panel of experts from around the state including key specialties and disciplines. External factors which would impact on the trauma system must be considered (particularly those factors which are unique to Massachusetts such as Prop 2½, local government autonomy, economic constraints, funding issues, etc.). All internal components of a trauma system may then be developed.

- ◆ ***Enabling legislation granting authority for comprehensive statewide trauma system development is mandatory.***

The rules and regulations could then address issues such as trauma registry, mandatory autopsy, designation of appropriate numbers of trauma centers, approval of prehospital protocol for triage and transport, etc. Verification of trauma centers and local system components should be based on guidelines developed by the American College of Surgeons Committee on Trauma and the Trauma Subcommittee of the American College of Emergency Physicians.

- ◆ Consideration of financial impacts on institutions and the various components should be objectively evaluated.
- ◆ Part of the strategy for implementation should consider the ways and means for meeting satisfactory financial solutions.

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J. EVALUATION

Standard

A comprehensive evaluation program is needed to effectively plan and implement a statewide EMS system. Each EMS system must be responsible for evaluating the effectiveness of services provided adult and pediatric victims of medical or trauma related emergencies. The statewide EMS system should be able to state definitively what impact has been made on the patients served by the system. EMS system managers must be able to evaluate resource utilization, scope of service, patient outcome, and the effectiveness of operational policies, procedures, and protocols. An effective EMS system evaluates itself against pre-established standards and objectives, so that improvements in service, particularly direct patient care, can occur. These requirements are part of an ongoing quality assurance (QA) system to review system performance. The evaluation process should be educational and ongoing. QA reviews should occur at all phases of EMS system management, so that needed policy changes or treatment protocol revisions can be made.

Status

The responsibility for quality assurance/improvement activities seems to rest primarily with the EMS Regional Councils. Currently, there is no overall coordination of evaluation processes throughout the Commonwealth. This has resulted in very limited quality assurance/improvement activities being conducted. There is no state plan or structure for this process. OEMS has conducted several studies in recent years but those evaluation programs appear somewhat fragmented with limited review of patient care issues.

Patient care quality improvement activities are generally addressed in the ALS plans of the five regions. However, there appears to be some variation among the regions. Mandated review of all cases involving the use of automatic or semi-automatic defibrillators is consistent and is the best example in the Commonwealth of an evaluation program. Regional and local medical directors also conduct monthly Morbidity and Mortality or run review sessions.

It appears that the lack of uniform data collection impedes the ability to coordinate quality improvement activities. There is no statewide EMS run form. Similarly, there is no requirement for uniform reporting of EMS data to either the state or regional level. Currently, EMS run forms are completed on all automatic defibrillation, intermediate and paramedic level runs. There is no consistent documentation available from first responders or basic EMTs.

Some of the hesitation among basic level prehospital providers toward patient care documentation and participation in quality improvement activities stems from a concern

about individual cases and providers being reviewed and criticized or disciplined. There was little evidence suggesting the use of Continuous Quality Improvement (CQI) methods. This method allows for the review of the structure, process and outcome of the system rather than individual providers. It should address (but not be limited to) problem identification, analysis, corrective action and follow-up review.

There is no consistent mechanism for follow-up and disposition reporting on EMS patients from the hospitals to which they are transported. Limited outcome data is available from selected hospitals but no routine information is available on all patients. The verified trauma centers in the state have established trauma registries, but there is no consistency among these registries and there is little or no sharing of the information.

The Helicopter Utilization Review Committee which has been developed appears to be functioning well in reviewing those cases in which a helicopter was requested. There is no mechanism which we could determine which investigates cases in which a helicopter may have been indicated but not requested.

There is no mechanism to ensure the confidentiality and nondiscoverability of quality improvement activities in the EMS setting.

Recommendations

- ◆ ***Develop a statewide plan for the evaluation process.*** This plan should be based upon the CQI method. It should provide for the establishment of a common data set to be shared with regional and state agencies for aggregation and use in evaluation. The use of a standardized run form would be ideal. All patient contacts (by all levels of providers) should be documented on an EMS run form. Performance standards should be developed for all levels of providers to assist in the evaluation process. The plan should also outline the responsibilities for state, regional and local EMS agencies and involve patient care activities provided by all levels of EMS providers (ground and air services).
- ◆ Enact statutory protection from disclosure for EMS Quality Improvement activities.
- ◆ Continue the automatic defibrillator case evaluation process and begin to aggregate and integrate that data into a common database.
- ◆ Develop mechanisms for ensuring patient follow-up from hospitals and trauma centers and for linking the prehospital and hospital data sets.
- ◆ Allocate resources (personnel and equipment) at all levels (state, regional and local) to achieve this goal.

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American Public Health Association
New York State Public Health Association
National Rural Health Association
National Association of Emergency Medical Technicians

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Subcommittee F30.03 Public Information and Education
National EMS Public Information, Education and Relations Campaign
Project Director
EMS Public Information and Education National Conference
Project Director
Development of Trauma Systems: A State and Community Guide
Project Manager
Mobile Trauma Training Unit Model Program
Project Director
A Statewide Injury Prevention Program by EMS Providers
Project Director
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Director, Emergency Medical Services

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National Flight Paramedic Association

Past President

Executive Liaison Committee

Utah State Paramedic Advisory Committee

Utah State Air Ambulance Committee

Mass Disaster Subcommittee Chairman

Salt Lake City Inter Hospital District Council Committee Co-Chairman

Protocol Subcommittee



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Medical Director
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Emergency Medicine Residency
Butterworth Hospital

Assistant Professor
Section of Emergency Medicine
Michigan State University

ORGANIZATIONS/APPOINTMENTS

American College of Emergency Physicians
EMS Committee
EMS Section
Disaster Medicine Section

Michigan College of Emergency Physicians
Board of Directors
EMS Committee, Chair

Society for Academic Emergency Medicine
EMS Committee
EMS Fellowship Task Force, Chair

American Board of Emergency Medicine
EMS Subspecialization Task Force

National Association of EMS Physicians
Executive Committee

State Liaison Committee, Chair
Air Medical Committee

EMS Subspecialization Task Force, Chair

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Clinical Professor
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Brandywine Hospital, Caln Township, PA
NHTSA Technical Assessment Team for State of Ohio EMS System
*St. Vincents Hospital, Erie, PA
*Hamnot Medical Center, Erie, PA

ORGANIZATIONS/APPOINTMENTS

Palm Beach County Medical Society
Past President
American Medical Association

Florida Medical Association
Past Chairman, EMS Committee
Florida Chapter of American College of Surgeons
Past President
American College of Surgeons
Fellow
Past Governor
American Association of the Surgery of Trauma
Fellow
Society of Critical Care Medicine
American Association of Automotive Medicine
Active Member
American Trauma Society
Florida Association of General Surgeons
Former Member
Board of Governors Chairman
Committee on Surgical Practice in Hospitals
American College of Surgeons Committee on Trauma
Active member, Subcommittee on Education
Senior Member, Subcommittee on Emergency Medical Services, Hospital
American College of Surgeons Regional Committees on Trauma
Member Virginia Committee on Trauma
Chief, Region IV
Florida State Chairman
University of Missouri Surgical Society President
(Formerly the M.S. de Weese Surgical Society)
Southeastern Surgical Congress
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Past Vice-President

Past Secretary

American Public Health Association

New Mexico Public Health Association

National Rural Health Association

New Mexico Primary Care Association

New Mexico EMT Association

Tesuque Volunteer Fire Department

Past Treasurer

National Registry of EMTs-Basic

State Emergency Response Committee

Appointed Member

State Search and Rescue Review Board

Appointed Member

Contributor to JEMS, PDM, Emergency Medical Services

